

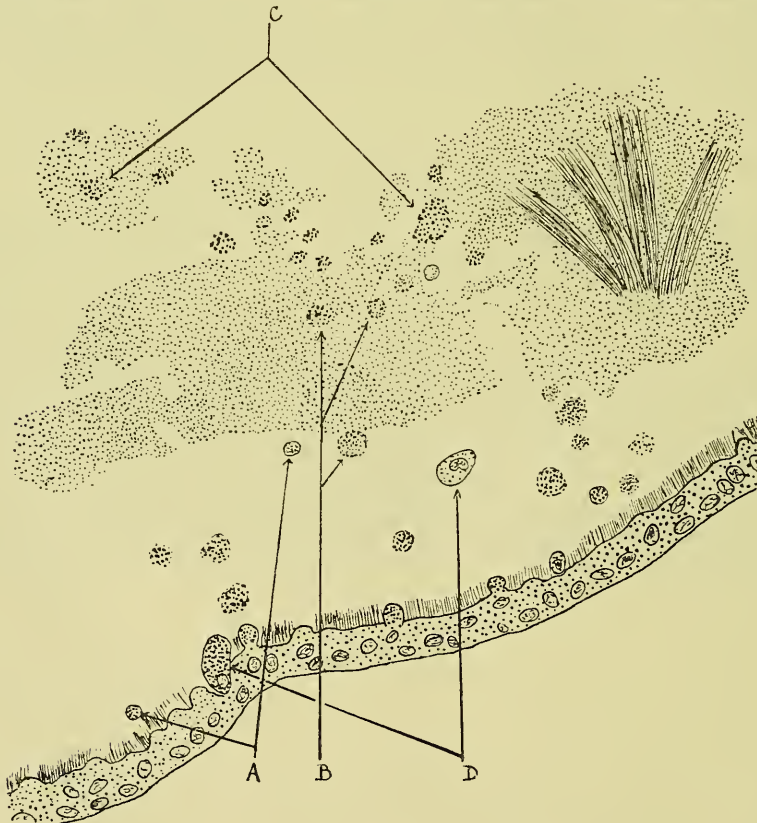
A NOTE ON AN UNUSUAL TYPE OF SECRETING EPITHELIUM IN THE
WOLFFIAN DUCT OF THE MALE DOG-FISH (*SCYLLIO-
RHINUS CANICULA*).

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Four Text-figures.

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While investigating the histology of the reproductive duct of an hermaphrodite dog-fish (Murray and Baker, 1924*), a curious type of secreting epithelium was noticed lining the Wolffian ducts of the normal male fish, both in the vas deferens,

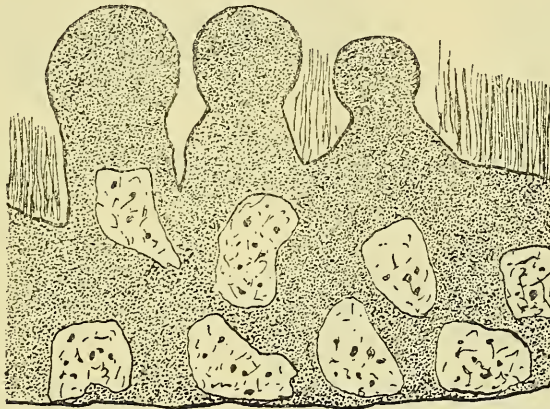


Text-fig. 1.—From a transverse section of Wolffian Duct between mesonephros and vesiculus seminalis. Watson Apo. 8 mm. and Watson Holo. x 14. (x 400.)

* *Journ. Anat.*, lviii, 1924.

and in the region known as the vesiculum seminalis. This is a ciliated epithelium one or two cells thick, the cells being of a low columnar form. Cell outlines are difficult to see in the material examined, but that the epithelium is made up of discrete cells and is not a syncytium is shown by the fact that in places the cell outlines are visible, as in part of Text-figure 4.

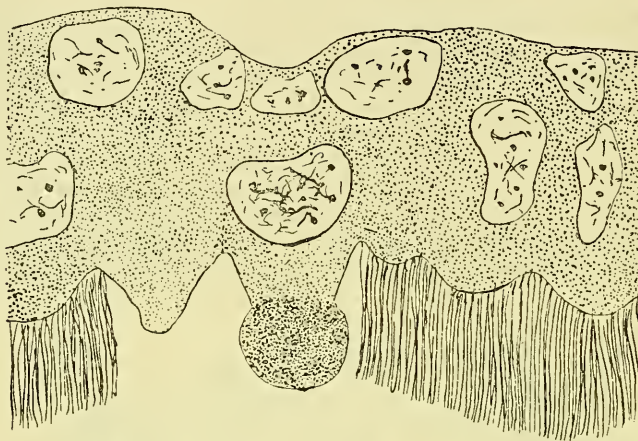
The epithelium consists mainly of cells bearing long cilia, but scattered among these are other cells, which bear no cilia, and whose function is secretory. The appearance of these cells varies according to the stage in the secretory process which has been attained by the individual cells. Further, there appear to be two modes of formation of the secretion. The secretory cells project somewhat beyond the level of the general ciliated epithelium, and those which are about to give off their secretion have their free ends rounded into spherical projections. These knob-like projections take the stain (Ehrlich's Haematoxylin and Eosin) more deeply than do the cell-bodies proper, but in texture they appear to be precisely similar to the rest of the cell, except that they are perhaps a little more dense.



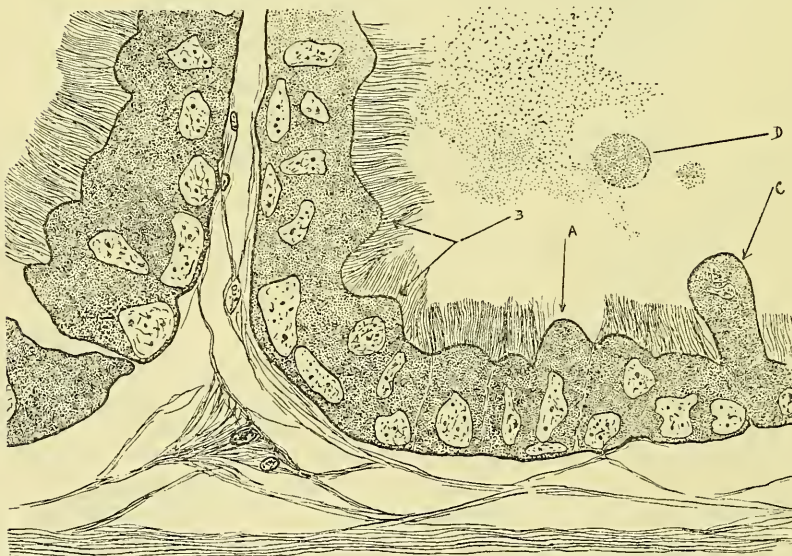
Text-fig. 2.—From a transverse section of the vesiculum seminalis region of the Wolffian Duct, showing three secreting cells and some of the ciliated epithelium. Zeiss $\frac{1}{12}$ inch and Watson Holos. $\times 10$. ($\times 1600$.)

Now, if the contents of the duct be examined, it will be found to consist of a homogeneous or finely granular substance, which in life is doubtless fluid, with many bundles of spermatozoa embedded in it. There will also be found embedded in it many small spherical bodies which are easily identified as the cast-off spherical projections of the secretory cells of the epithelium, since all stages can be found between the recently cast-off intact sphere (Text-fig. 1, *a* and 4, *d*), through such stages as are shown in Text-fig. 1, *b*, where the knobs are seen beginning to disintegrate, to stages like Text-fig. 1, *c*, where the well defined rounded outline of the sphere has been lost, and it is scarcely distinguishable from the general mass of the substance in which the bundles of spermatozoa lie. There can, then, be no doubt that the spherical projections of these cells form, by their disintegration, the material in which the spermatozoa are bathed. The natural assumption is that this substance is a nutrient medium, analogous to

the seminal fluid of man, and the histological appearance strongly supports the idea that the spherical bodies are actual protruded portions of cytoplasm, rather than globules of a metaplastic secretion. This is made more probable by the existence of what appears to be another mode of formation of the secretion. In



Text-fig. 3.—From a transverse section of the vesiculum seminalis region of the Wolffian Duct showing a secretory cell with the sphere in a more advanced stage than in Text-fig. 2. Zeiss $\frac{1}{12}$ and Watson Holo. $\times 10$. ($\times 1600$.)



Text-fig. 4.—From a transverse section of the vesiculum seminalis region of the Wolffian Duct, showing ciliated epithelium, secretory cell probably about to leave the epithelium, and the base of one of the longitudinal ridges of the duct wall. Zeiss $\frac{1}{12}$ and Watson Parachromatic No. 2 ($\times 6$). ($\times 700$.)

this, whole cells are extruded from the epithelium and come to lie free in the lumen of the duct, where they would appear to degenerate and contribute to the secretion. Such cells are shown at *d* (Text-fig. 1), and the cell at *c* (Text-fig. 4) appears to be about to leave the epithelium.

Turning to the figures, Text-fig. 3 shows a cell with the secretory sphere complete and about to be thrown off, while in Text-fig. 2 three cells in earlier stages of formation of the sphere are seen. At *b* (Text-fig. 4) are shown cells which are either in early stages of sphere formation or else have just thrown off their spheres. These cells are drawn as ciliated. Although this certainly is the appearance presented by the specimen, it is possible that the cilia shown really belong to other cells lying behind those figured. If the cilia are actually upon the cells figured, it suggests that the ciliated cells and the secretory cells are mutually convertible.

I originally noticed this epithelium in collaboration with Mr. John R. Baker, of the University of Oxford, and I am indebted for the material to the Dept. of Zoology in the University of Oxford.
